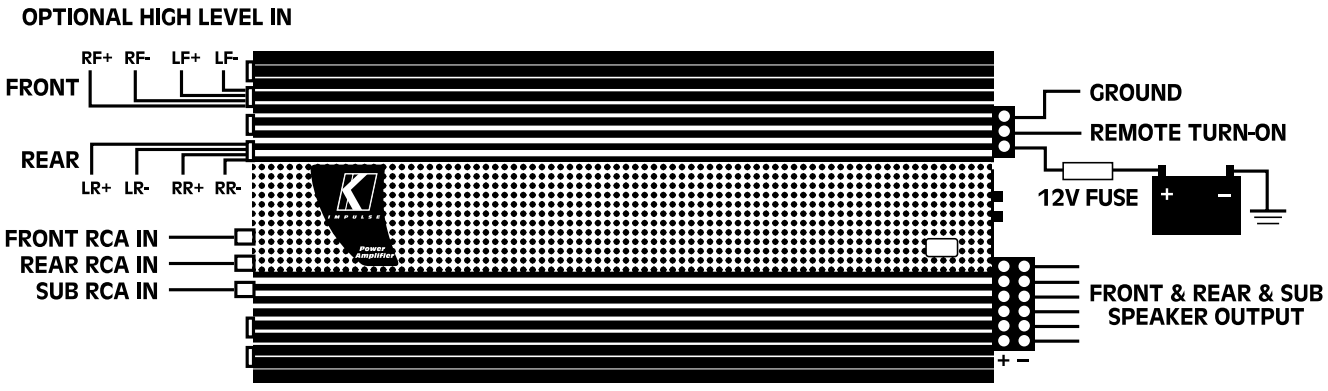
IX406
Six-Channel Power Amplifier

Congratulations! You have just purchased one of the latest in a long line of exceptional car audio power amplifiersfrom Stillwater Designs. Your KICKER Impulse was designed and engineered by the same team which created many other international award winning KICKER components like the ZR, ZX, and XS-Series amps. It contains a number of cutting-edge features to give you outstanding performance and dependability when installed in a properly designed system.
Thanks for buying KICKER. Enjoy.

KICKER IMPULSE AMPLIFIER FEATURES

Separate electronic crossovers are built in for convenience and allow you to select full range or highpass for front and rear channels as well as full range or lowpass for the sub output.
The Kicker Impulse IX406 Amplifier is 2 Ohm stable on all six channels; the sub out can be bridged to as low as 4 Ohm mono. For connection to the source , you have the option of low level RCA inputs or a high level input for use with radios that don't have RCA outputs.
Separate KICKEQ bass and treble controls give you the ability to boost low and high frequencies to tailor the music to your taste.

Auto-resetting short circuit and overthermal protection circuits are incorporated to protect the amplifier from failure due to extreme conditions.
State of the art circuitry including MOSFET power supply and glass epoxy circuit boards are used to ensure many years of trouble free operation.



Wiring

The preferred method of bringing input signal in to the amplifier is with RCA cables from a quality tape or CD player. A high (speaker) level input signal may also be used if your factory deck or aftermarket source does not have low level RCA jacks. It is not recommended to mix high and low level inputs. Engine noise in the system will probably result.

ome of the system possibilities are shown in the System Diagrams section of this manual.
When working with power connections always hook up the ground wire first and disconnect the ground wire last. Never make any wiring changes with the amplifier powered up.

The chassis mounted fuse(s) are in place to protect the circuitry of the amplifier in the event of major trouble. An in-line fuse must be installed within 18 inches of the battery to protect the power wire used to supply current to the amplifier. For the Kicker Impulse IX406 amplifier a fuse value of 60A and 8 gauge power wire are recommended. If the power wire is longer than 10 feet, it is recommended that the wire size be 4 gauge to reduce losses.

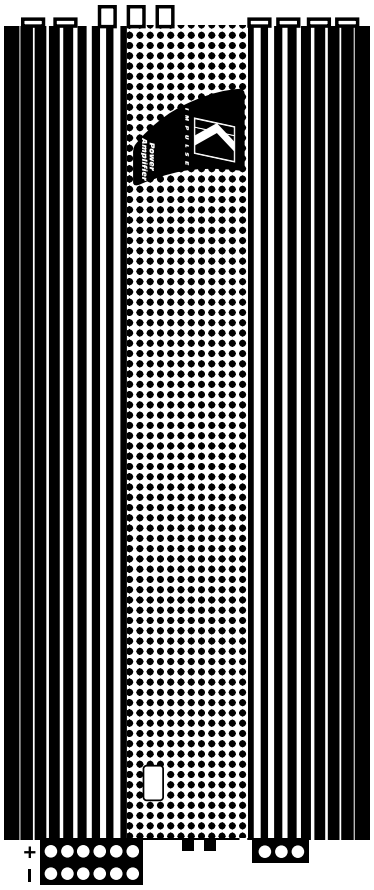
Any time that a power wire goes through a metal panel such as the firewall, or if there is any chance of abrasion, it is necessary to use a grommet or other suitable form of protection to avoid shorts.

The ground wire should be at least 8 gauge, as short as possible and attached to the body of the vehicle. The ground point must be free from paint and corrosion.

Mounting the IMPULSE Amplifier

After determining an appropriate mounting location which provides good air circulation and access to the end panel controls, use the supplied screws and washers to firmly mount the amplifier.The amplifier chassis can be used as a template for the screw locations. Check to make sure that the mounting screws will not damage any components on the back side of the chosen mounting surface.

If a vertical mounting surface is chosen, we recommend that the heatsink fins run vertically as shown for improved cooling.



EXPLANATION OF INPUT OPTIONS FOR THE IMPULSE IX406

The IX406 amplifier has five different options for hookup to your source unit.

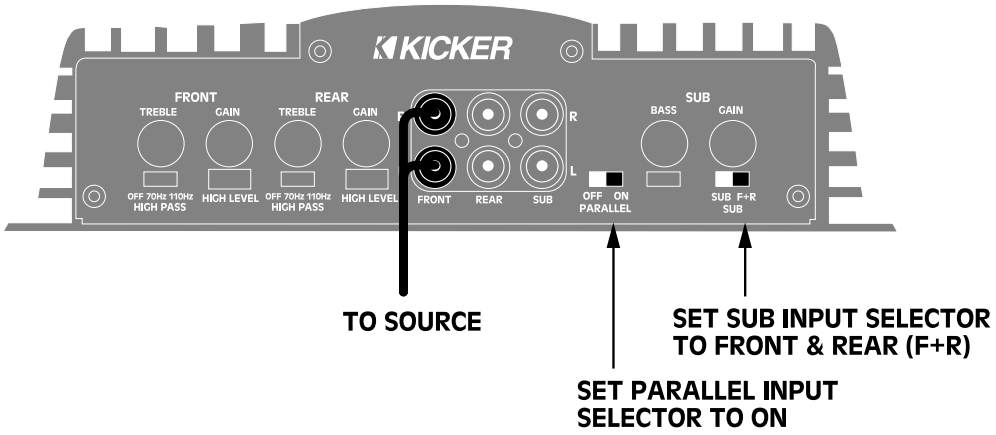
1. One pair of RCA cables.
2. Two pairs of RCA cables.
3. Three pairs of RCA cables.
4. One stereo pair of high level inputs.
5. Two stereo pairs of high level inputs.

Combinations of high and low level inputs are not recommended

The Parallel input selector switch allows you to select one or two inputs (low level or high). The sub channels get their signal from the front and rear inputs, or from separate RCA jacks, determined by the position of the Sub Channel input switch.

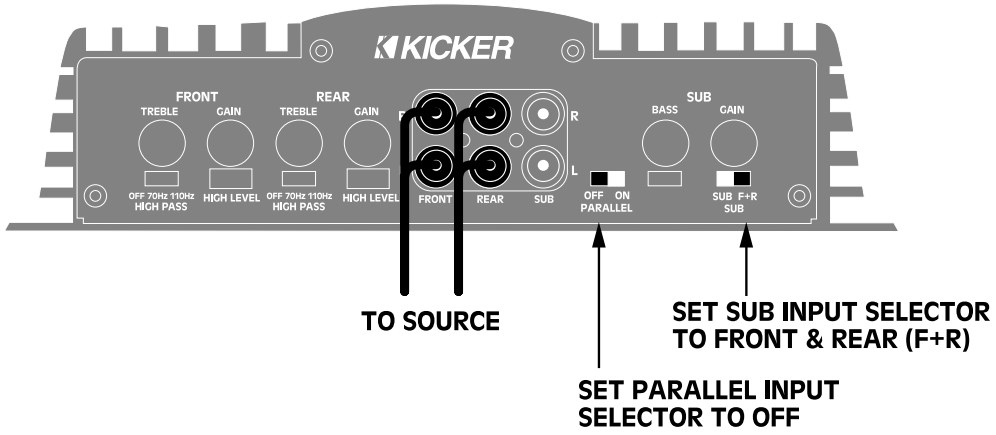
Input Option 1: Using One Pair of RCA Cables

With the Parallel input selector switch in "ON" position, and the Sub input switch in the "F+R" position, all six channels receive input from the front input RCA's.This configuration gives output on all six channels with only one pair of inputs. There is no fader capability.

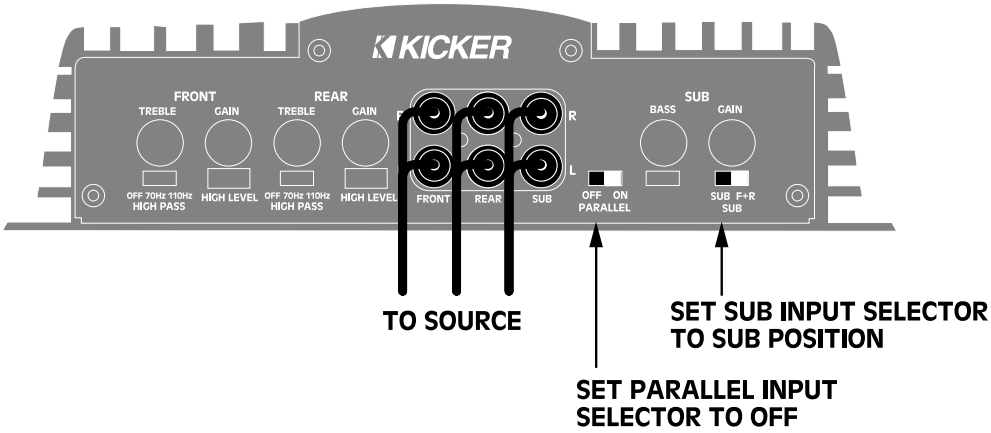


Input Option 2: Using Two Pairs of RCA Cables

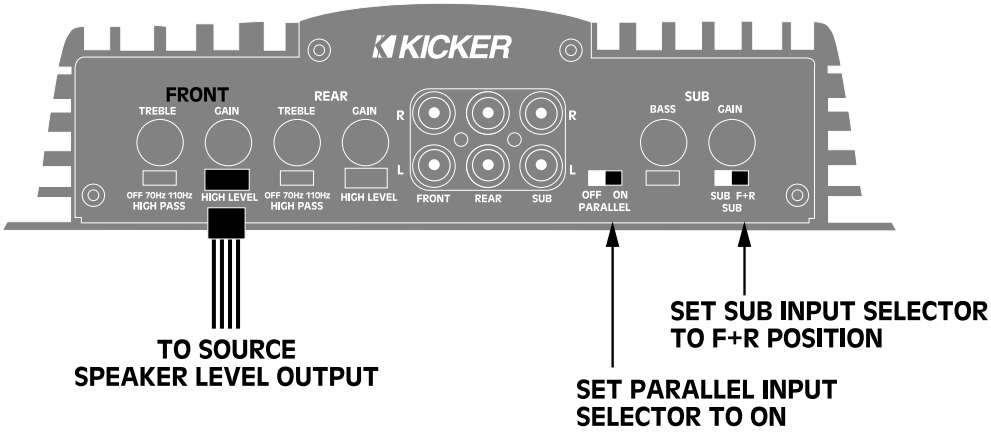
With the Parallel input selector switch in the "OFF" position, and the Sub input switch in the "F+R" position, the fader capabilities are enabled and the sub channels get signals from both front and rear inputs.



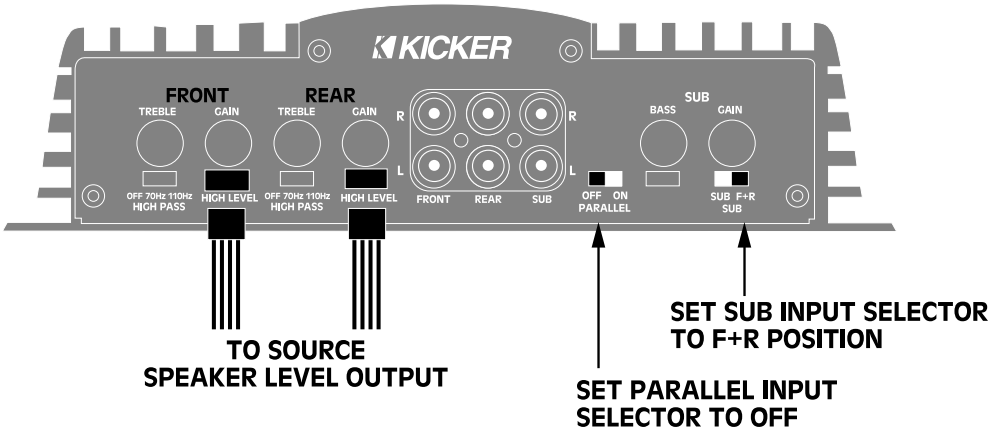
Input Option 3: Using Three Pairs of RCA Cables
If the source unit has a separate sub output or if using an external crossover use this configuration. With the Parallel input selector in the "OFF" position and RCA's plugged into the sub inputs, you have six inputs and six outputs, all separate.



Input Option 4: Using a Stereo Pair of High Level Inputs
With the Parallel input selector switch in "ON" position, and the Sub input switch in the "F+R" position, all six channels receive input from the front high level inputs. There is no fader capability.

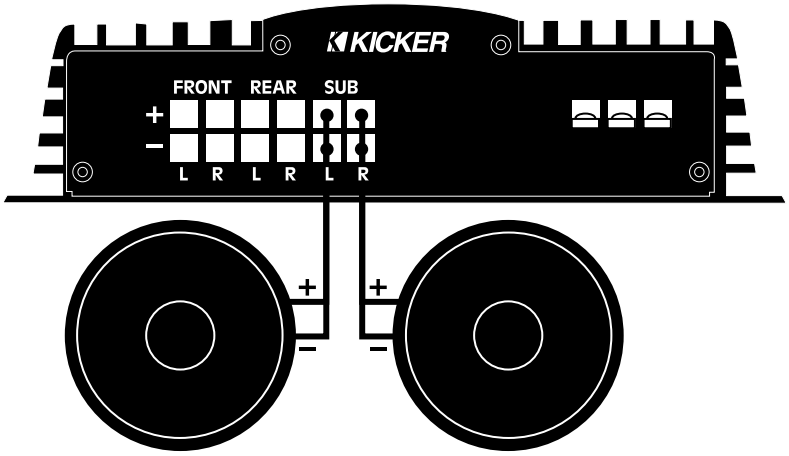


Input Option 5: Using Two Stereo Pairs of High Level Inputs
With the Parallel input selector switch in the "OFF" position, and the Sub input switch in the "F+R" position, fader capability is enabled and the sub channels get signal from both front and rear inputs.

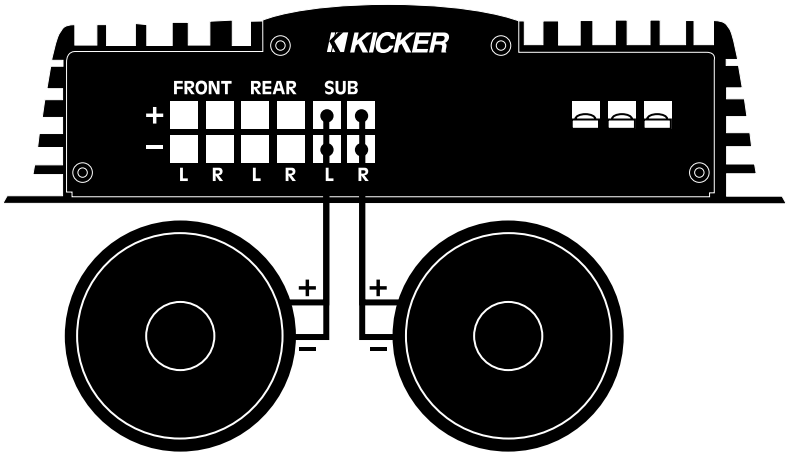


Basic Sub Options for the IMPULSE Six-Channel Amplifier

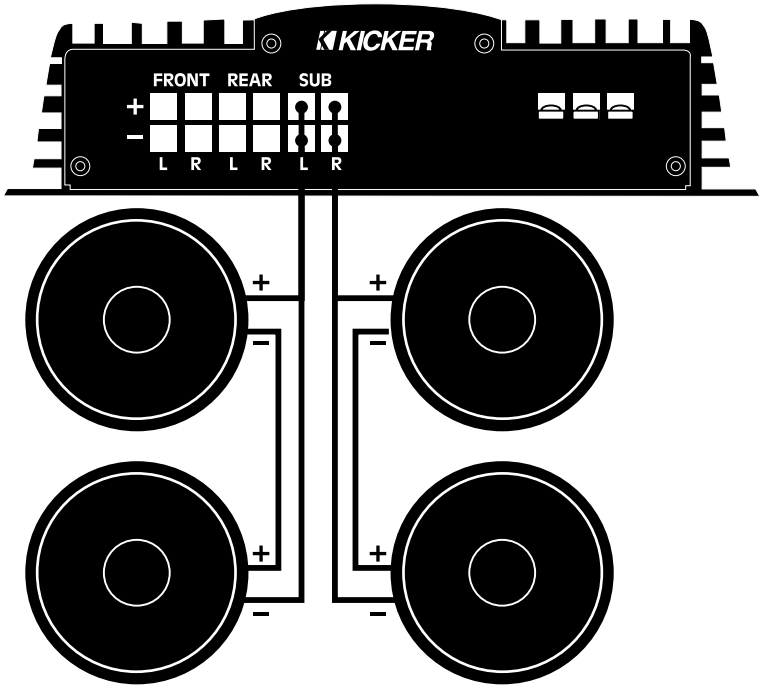
Using One 4 or 8 Ohm Subwoofer



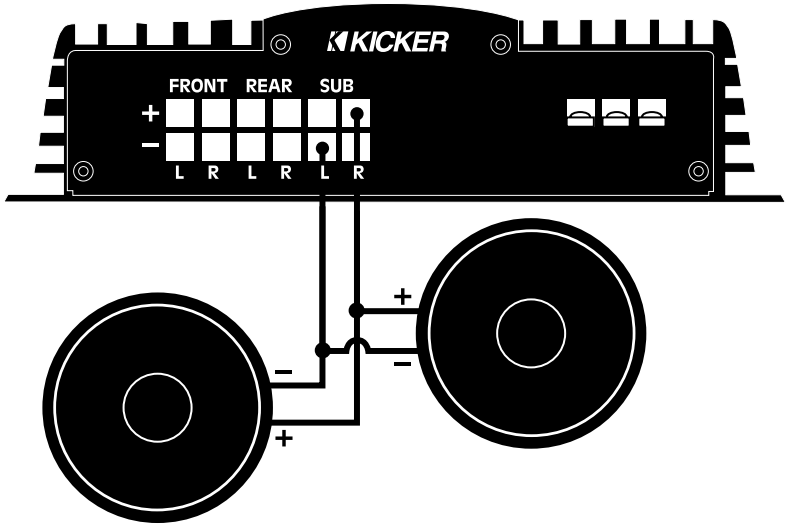
Using Two 2 or 4 Ohm Subwoofers



Using Four 2 Ohm Subwoofers

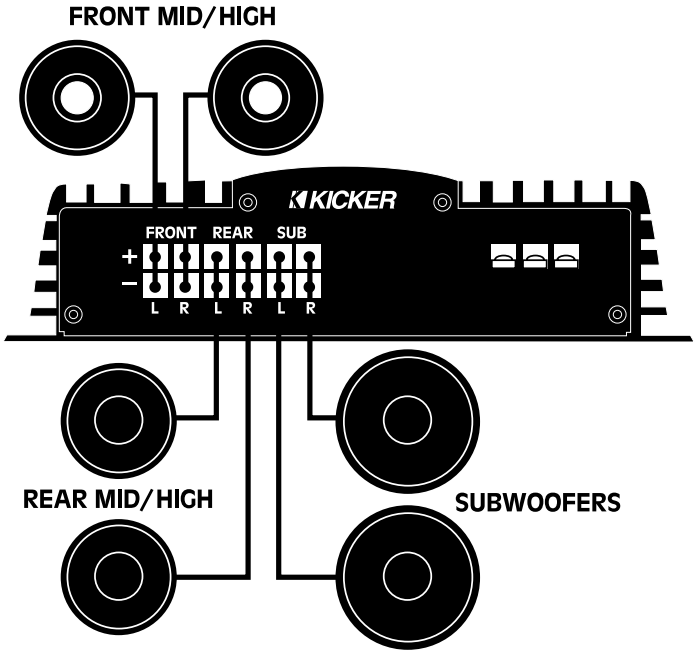


Using Two 8 Ohm Subwoofers

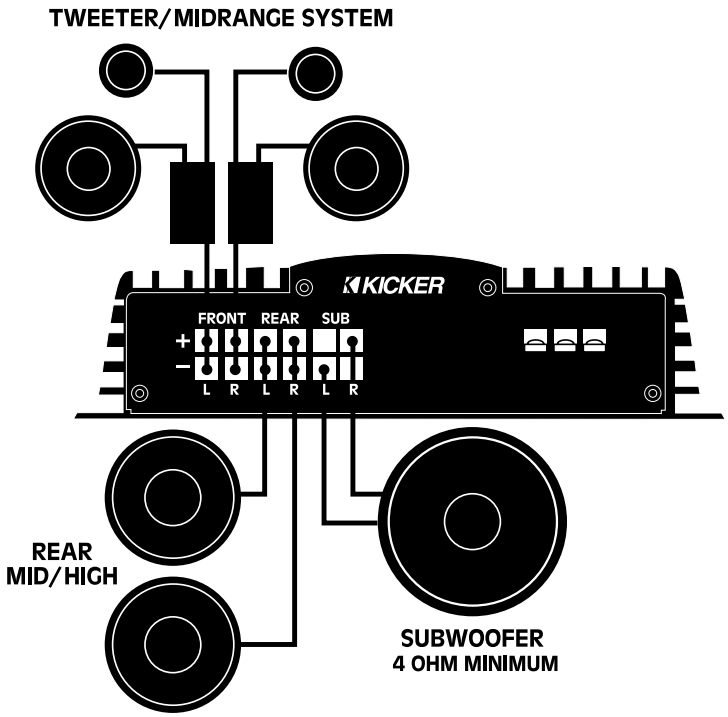


Basic Systems for the IMPULSE Six-Channel Amplifier

Front & Rear Speakers with Stereo Subwoofers*

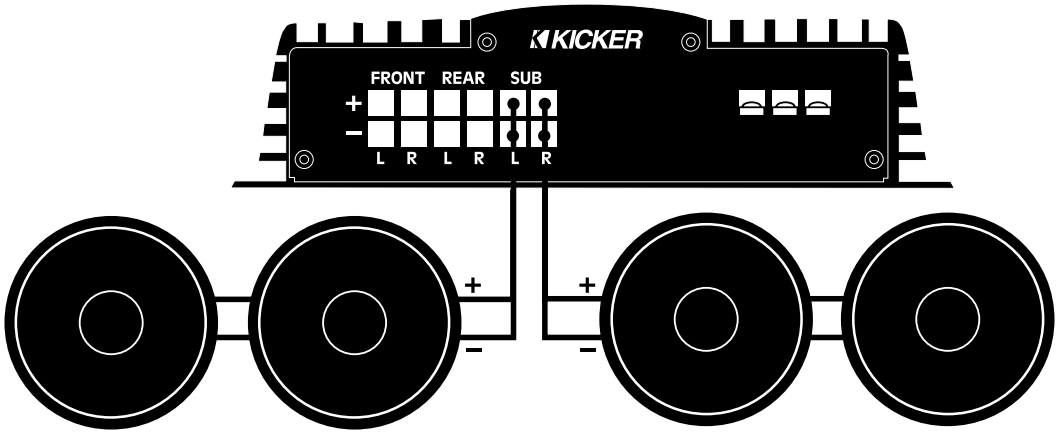


Front & Rear Speakers with Bridged Mono Subwoofer(s)*

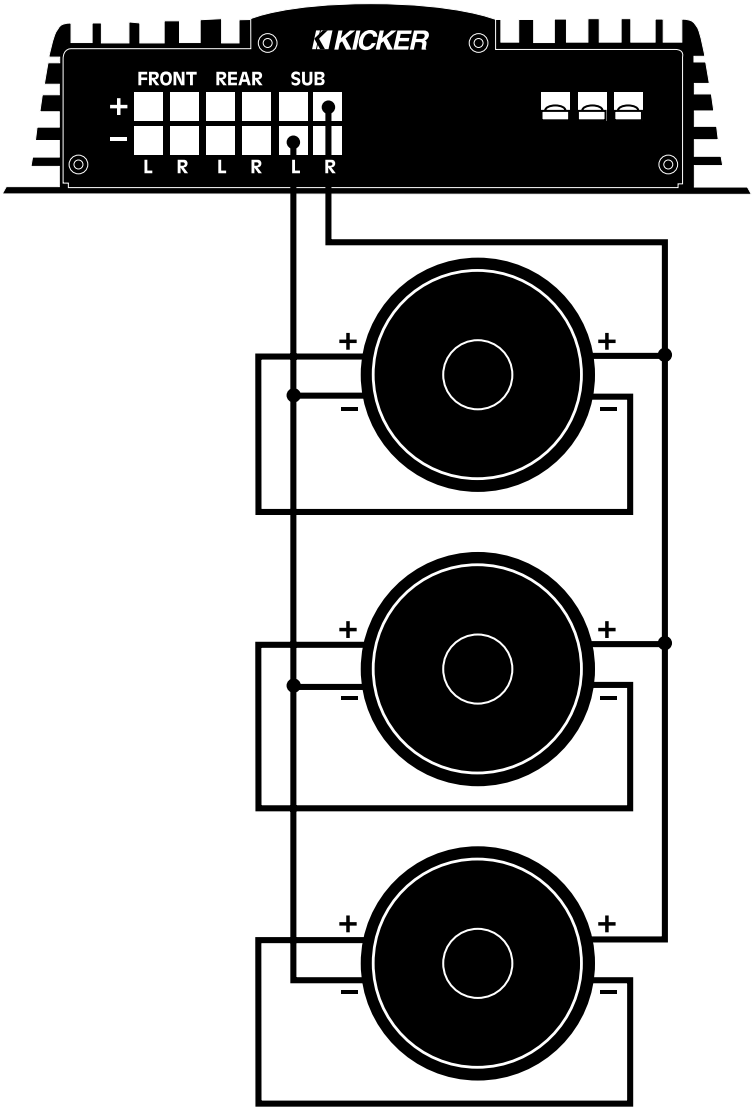


*Front & Rear crossovers set to 70 or 110Hz highpass.
Sub crossover set to 70 or 110Hz lowpass.

Using Four 4 or 8 Ohm Subwoofers



Using Three 6 Ohm DVC Subwoofers



Adjustments and Controls

Setting Gain Control

The gain control is provided for level matching purposes. The control does not give the amplifier any more power by turning it up. Its purpose is to adjust the sensitivity of the amplifier in relation to the output level provided by the source.

Start with the amp gains set to minimum by turning the controls counter-clockwise. Turn the source level up until distortion is barely audible. Then turn the source down slightly. This will typically be at about 85 to 95% of full volume. Raise the front amplifier gain control until distortion is just audible in the front speakers. Now the deck is matched to the front amplifier channels. Turn the source down to a realistic listening level.

Turn the rear amplifier gain control up until the desired front/rear balance is achieved.

Turn the sub amplifier gain control up to provide the bass level desired.

Note: As the KICKEQ controls are turned up to provide additional bass or treble, the overall signal goes up. It may be necessary to readjust the gain controls if the KICKEQ controls are turned up very much.

Setting KICKEQ™ Controls

The Bass and Treble controls on your Impulse Amplifier are provided to help tune your system for ideal sound quality. After the system is installed and the vehicle is put back together, do a listening test with music that is typical of the type you normally listen to.

Initially set the tone controls on the source unit to flat and turn the KICKEQ™ controls fully counter-clockwise. Depending on your personal taste and the speakers used in the system, you may want to increase the high or low frequencies by turning the KICKEQ™ controls clockwise. Remember that once the vehicle is in motion there will be an apparent loss of bass due to the masking effect of road noise. Do not attempt to make adjustments while the vehicle is in motion. It is safer to pull off the road to make changes.

Never change the crossover settings while the amplifier is on. A loud pop will result which could destroy speakers or cause hearing loss.

Troubleshooting

The LED mounted on the end panel of the amplifier lights up in two different colors depending on the condition of the amplifier. Green indicates that the amplifier is turned on and no trouble exists. When it turns red this indicates that the protection circuit has been engaged. The LED on the top of the amplifier chassis indicates that the amplifier is on. When the protection circuit is engaged, this LED turns off.

Green power indicator off, no output:

- With Volt Ohm Meter (VOM) check:
    1. +12v power terminal
    2. Ground terminal
    3. Remote turn-on lead

Green power indicator on, no output:

- Check RCA and connections
- Test speaker outputs with known good speaker
- Check function of source unit
- With VOM in AC volts position check RCA for signal

No output from one channel:

- Check RCA and speaker connections for that channel
- Swap RCA connections from left to right
- Swap speaker connections between channels

Red LED protection indicator is lit and there is no output:

Case 1: Amp is very hot

- Thermal protection is engaged. Check for proper impedance at speaker terminals. Also check location of amplifier to ensure proper air flow around heatsink.

Case 2: Output resumes momentarily when system is turned off and back on.

- Short circuit protection is engaged. With VOM check for short between speaker positive and negative, and between speaker terminals and ground.

Alternator noise (a whining that varies with engine RPM)

- Make sure that the ground for the source is as short as possible and connected to bare chassis metal. The stock radio ground may not be sufficient.
- Check RCA cable routing and condition. Keep RCA cables away from all power wires.

Specifications

Model	RMS Power (watts/channel) @ 12.5V, 4Ω stereo, 0.085% THD, all channels driven	RMS Power (watts/channel) @ 12.5V, 2Ω stereo,0.2% THD, all channels driven	RMS Power (watts) @ 12.5V, 4Ω bridged mono, 0.2% THD	Dimensions (inches) HxWxL
IX406	40 x 6	55 x 4	115 x 3	2.5x9.5x18.9

	Dynamic Power (watts/channel) @ 14.4V, 4Ω stereo, 0.085% THD, all channels driven	Dynamic Power (watts/channel) @ 14.4V, 2Ω stereo, 0.2% THD, all channels driven	Dynamic Power (watts) @ 14.4V, 4Ω bridged mono, 0.2% THD	Dimensions (mm) HxWxL
IX406	55 x 6	75 x 6	150 x 3	63x241x482

Frequency Response	20Hz-20kHz ±0.5dB
Input Sensitivity	High level 1V-10V Low level 150mV-3.0V
Signal-to-Noise Ratio	>95dB, a-weighted, re: rated power
Active Electronic Crossover	18dB/octave, selectable @ 70Hz or 110 Hz;
KICKEQ™ Bass Boost	Variable to +18dB, centered @ 40Hz
KICKEQ™ Treble Boost	Variable to +12dB, centered @ 18kHz

ELECTRONICS LIMITED WARRANTY

Stillwater Designs warrants this product to be free from defects in material and workmanship under normal use for a period of **three (3) years from date of original purchase when installed by an Authorized KICKER Dealer or one (1) year from date of original purchase if not installed by an Authorized KICKER Dealer.** If this product is labeled "B Stock", it is warranted for one (1) year from date of purchase, regardless of place of installation. Should service be necessary under this warranty for any reason due to manufacturing defect or malfunction during the warranty period, Stillwater Designs will replace or repair (at its discretion) the defective merchandise with equivalent merchandise at no charge. Warranty replacements on "B-Stock" merchandise may have cosmetic scratches and blemishes. Discontinued products may be replaced with equivalent products.

This warranty is valid only for the **original purchaser** and is not extended to owners of the product subsequent to the original purchaser. Any applicable implied warranties are limited in duration to a period of the express warranty as provided herein beginning with the date of the original purchase at retail, and no warranties, whether express or implied, shall apply to this product thereafter. Some states do not allow limitations on implied warranties, therefore these exclusions may not apply to you.

This warranty gives you specific legal rights; however you may have other rights that vary from state to state.

WHAT TO DO IF YOU NEED WARRANTY OR SERVICE

Defective merchandise must be returned to your local Authorized Stillwater Designs (Kicker/Impulse) Dealer for warranty. Assistance in locating an Authorized Dealer can be obtained by writing or calling Stillwater Designs direct. You can confirm that a dealer is authorized by asking to see a current authorized dealer window decal.

If it becomes necessary for you to return defective merchandise, call the Kicker Customer Service Department at (405)624-8510 for a Return Authorization (RA) number. Package all defective items in the original container or in a package that will prevent shipping damage, and return to

Stillwater Designs, 5021 North Perkins Road, Stillwater, OK 74075

The RA number must be clearly marked on the outside of the package. Return only defective components. Non-defective items received will be returned freight collect.

Include a **dated proof-of-purchase** from an Authorized Dealer. Warranty expiration on items returned without proof-of-purchase will be determined from the manufacturing date code. Coverage may be invalidated if this date is greater than one (1) year previous to the date item is sent in. Freight must be prepaid; items received freight collect will be refused.

Failure to follow these steps may void your warranty. Any questions can be directed to the Kicker Customer Service Department at (405)624-8510.

WHAT IS NOT COVERED?

This warranty is valid only if the product is used for the purpose for which it was designed. It does not cover:

- Products purchased from an unauthorized dealer.
- Damage due to improper installation
- Damage caused by exposure to water, excessive heat, chemical cleaners, and/or UV radiation.
- Damage through negligence, misuse, accident or abuse. Repeated returns for the same damage may be considered abuse.
- Freight damage.
- The cost of shipping product to Stillwater Designs.
- Items previously repaired or modified by any unauthorized repair facility.
- Items returned from unauthorized individuals or dealers.
- Return shipping on non-defective items.
- Products with tampered or missing barcode labels.
- Products returned without a Return Authorization (RA) number.

HOW LONG WILL IT TAKE?

Stillwater Designs maintains a goal of 24-hour service for all returns. Delays may be incurred if lack of replacement inventory or parts is encountered.

INTERNATIONAL WARRANTY

Contact your International Stillwater Designs dealer or distributor concerning specific procedures for your country's warranty policies

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WARNING:

.KICKER components are capable of producing sound levels that can permanently damage your hearing! Turning up a system to a level that has audible distortion is more damaging to your ears than listening to an undistorted system at the same volume level. The threshold of pain is always an indicator that the sound level is too loud and may permanently damage your hearing. **Please use common sense when controlling volume!**

April 2002